



## ISOLATION AND SCREENING OF LIGNOCELLULOSIC ENZYMES OF FUNGI COLLECTED IN “PARQUE NACIONAL EL CHICO”, MÉXICO

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**Introduction.** The lignocellulosic enzymes have important biotechnology applications like effluents decolorization produced by textile and paper industry or degradation of contaminants as phenolics waste and some hydrocarbons [1].

These kinds of enzymes can be produced by microorganisms isolated in woodlands, not studied before, like “Parque Nacional El Chico”. This Park has favorable condition of humidity and temperature to allow the development of fungi.

The purpose of the present work is the isolation and selection of fungus with lignocellulosic activities from “Parque Nacional El Chico”.

**Methods.** The isolation was made with PDA supplemented with 100 mg/ml of ampicillin and 6 mg/ml of benomyl and incubated at 28°C.

The activities analyzed were: laccase (Lcc) in PDA supplemented with ABTS 5 mM [2] and Manganese peroxidase (MnP) in PDA supplemented with phenol red (0.2%) [3]. These activities were reported as potential index (defined as the relationship between activity halo and growth). Also were analyzed the xylanase and cellulose activities using xylan and Carboxymethylcellulose as carbon source, respectively and fooded with Gram’s iodine [4], in this case we report as positive or negative activities.

All experiments were made in duplicate and the standard deviation was minor at 10%.

**Results.** We collected 34 fungi carpophores grown on dead wood, and we isolated 17 strains that were analyzed. The results (Table 1) show that all strains have cellulase and xylanase activity. CB-PNP-003, -014 y -015 showed the highest Lcc and MnP activity so they are a good alternative to biotechnological approach.

**Table 1.** Lcc, MnP, Xyl y Cel activities of strains isolated from the “Parque Nacional El Chico”

Fungi	Lcc	MnP	Xyl	Cel
CB-PNC-001	0	0	+	+
CB-PNC-002	1	0	+	+
CB-PNC-003	1.8	0.95	+	+
CB-PNC-004	0	0	+	+
CB-PNC-005	0.1	0	+	+
CB-PNC-007	1.9	0	+	+
CB-PNC-008	0	1.9	+	+
CB-PNC-010	0	0	-	+
CB-PNC-012	1	1.3	+	+
CB-PNC-013	0	1.1	+	+
CB-PNC-014	1.4	0.9	+	+
CB-PNC-015	1.8	0.4	+	+
CB-PNC-018	0	1.4	+	+
CB-PNC-019	0.1	0	+	+
CB-PNC-021	0	0	+	+
CB-PNC-025	0	0	+	+
CB-PNC-034	0	0.5	+	+

**Conclusions.** We collected 34 carpophores, 17 strains were isolated and 3 of them were selected for their ability to produce lignocellulosic enzymes.

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